

AMENDMENT AND RESPONSE AND SUMMARY OF PERSONAL INTERVIEW WITH THE EXAMINER

Ser No. 10/666,573

February 1, 2005

Amendment

In the Specification:

At page 5, please amend the paragraph beginning at line 1, as follows:

--Possible ingredients of the coating composition of the invention are as follows:

- (a) A preferred phosphorous containing material which decomposes on contacting fire is ammonium polyphosphate obtainable as ~~Exolit~~ EXOLITTM AP462 and AP422 from Clariant.
- (b) A hydroxylated thermosetting resin is a preferred binder component. The preferred thermosetting resins are epoxy resins and a suitable epoxy resin is a ~~diglycidyl~~ diglycidyl ether of bisphenol A (Molecular Weight approximately 1800) known as 663 UE obtainable from the Dow Chemical Company. The thermosetting resin also serves to control the stiffness of the coating.
- (c) A suitable curing agent (epoxy hardener) for the thermosetting epoxy resin is a phenolic resin DEH 82 which again is obtainable from the Dow Chemical Company.
- (d) Preferred thermoplastic binders are aldehyde and ketone resins. A suitable ~~aldehyde~~ ketone resin is LAROPALTM ~~Laropal~~ A81 and a further suitable aldehyde resin is LAROPALTM ~~Laropal~~ A101 both obtainable from BASF. A81 ~~ketone resin~~ and A101 aldehyde resins ~~resin~~ have a very low melt viscosity which can assist the extruder processing of the coating ingredients. The A81 resin and/or A101 gives plasticity to the binder system and this increased plasticity makes for easier foaming of the carbonaceous material when formed.
- (e) The optional melt viscosity modifier is an extrusion aid, e.g. hydrogenated castor oil obtainable as ~~Thixcin~~ THIXCINTM from Rheox. The hydrogenated castor oil reduces the viscosity of the binder system during the extrusion process and during the coalescence phase of the curing cycle.
- (f) A colouring agent may be included in the coating composition to impart colour and opacity to the paint. The white pigment titanium dioxide can be used and since titanium dioxide is a high temperature resistant mineral (manufactured by

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calcination at approximately 1000°C) it also assists in maintaining the structure of the char.

(g) Other materials which can be included in the coating composition of the invention are:

- (i) china clay (e.g. bentonite) as a stabilising agent;
- (ii) melamine phosphate as a stabilising agent, additional blowing agent and additional source of phosphorous material;
- (iii) vitrifiers, e.g. zinc borate;
- (iv) metal salts to impart various properties; and
- (v) melamine to give enhanced blowing effect.--

Please amend the Table on page 7, line 7 of the instant specification, as follows:

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Ex	Epoxy Resin	Phenolic Curing Agent	Aldehyde Ketone Resin	THIXCIN™ Thixein	Ammonium Polyphosphate	TiO ₂
1	18.0	6.0	10.0	3.5	55.0	7.5
2	18.0	6.0	10.0	3.5	57.5	5.0
3	15.0	5.0	14.0	3.5	57.5	5.0
4	18.0	6.0	6.5	7.0	57.5	5.0
5	16.5	5.5	8.5	7.0	57.5	5.0
6	22.5	7.5	15	-	50.0	5.0

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Please amend the paragraph at page 7, lines 7-8 of the instant
specification, as follows:

--The ~~aldehyde~~ketone resin of the above Examples can be replaced with a
~~ketonean-aldehyde~~ resin to give similar effects.--

In the Claims:

Please amend claims 1, 5, 8, 14, 15, 16, 17 and 18, as follows:

1. (currently amended) A fire retardant intumescent coating composition comprising:
 - (a) 3 to 60% by weight of a phosphorous containing material which decomposes to produce phosphoric acid when the coating is exposed to fire;
 - (b) 10 to 30% by weight of a thermosetting binder;
 - (c) 2.5 to 10% by weight of a curing agent for the thermosetting binder; and
 - d) 5 to 40% by weight of a thermoplastic binder comprising an oxygenated heterocyclic thermoplastic resin,wherein each the active groups of the thermosetting and thermoplastic binders comprise groups that react with the said phosphoric acid, thereby imparting~~are chosen so as to impart~~ charring and blowing functions to the intumescent coating composition.
2. (original) A fire retardant intumescent coating composition according to claim 1 wherein the binder system accounts for 30% or more by weight of the composition.
3. (previously presented) A fire retardant intumescent coating composition according to claim 1 wherein the phosphorous containing material is a sodium, potassium or ammonium polyphosphate.

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4. (previously presented) A fire retardant intumescent coating composition according to claim 1 wherein the thermosetting binder is a hydroxylated thermosetting resin.
5. (currently amended) A fire retardant intumescent coating composition according to any one of claims 1 to claim 4 wherein the thermosetting resin is an epoxy resin.
6. (previously presented) A fire retardant intumescent coating composition according to claim 1 wherein the curing agent for the thermosetting binder is a phenolic curing agent.
7. (canceled).
8. (currently amended) A fire retardant intumescent composition according to claim 17 wherein the thermoplastic is an aldehyde or ketone resin.
9. (previously presented) A fire retardant intumescent coating composition according to claim 1 containing 0.1 to 10% by weight of a melt viscosity modifier.
10. (original) A fire retardant intumescent coating composition according to claim 9 wherein the melt viscosity modifier is hydrogenated castor oil.
11. (previously presented) A fire retardant intumescent coating composition according to claim 1 containing 1 to 10% by weight of a colouring agent.
12. (original) A fire retardant intumescent coating composition according to claim 11 wherein the colouring agent is titanium dioxide.

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13. (previously presented) A fire retardant intumescent coating composition according to claim 1 containing one or more additives selected from the group consisting of a china clay, melamine phosphate, vitrifiers, metal salts and melamine.

14. (currently amended) A fire retardant intumescent powder coating composition comprising the following components:

- (a) 30 to 60% by weight of a phosphorous containing material which decomposes to produce phosphoric acid when the coating is exposed to fire;
- (b) 10 to 30% by weight of a thermosetting binder;
- (c) 2.5 to 10% by weight of a curing agent for the thermosetting binder; and,
- (d) 5 to 40% by weight of a thermoplastic binder;
- ~~(e) 0 to 10% by weight of a melt viscosity modifier; and,~~
- ~~(f) 0 to 10% by weight of a colouring agent~~

in which a)-(d)(f) must always add up to 100% by weight, ~~and wherein each of the said active groups of the thermosetting and thermoplastic binders~~ comprise groups that react with the said phosphoric acid, thereby imparting ~~are chosen so as to impart charring and blowing function to the intumescent coating composition, and,~~ further wherein, the said composition is made by a process comprising premixing the said components (a)-(d), extruding the premix, and grinding the thus formed extrudate to form a powder.

15. (currently amended) A ~~fire retardant intumescent coating composition~~ according to claim 14 wherein the thermosetting resin is a hydroxylated thermosetting resin.

16. (currently amended) A ~~fire retardant intumescent coating composition~~ according to claim 15 wherein the thermosetting resin is an epoxy resin.

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17. (currently amended) A ~~fire-retardant intumescent coating~~ composition according to any one of claims 14 to 16 wherein the thermoplastic resin is an oxygenated heterocyclic thermoplastic resin.

18. (currently amended) A ~~fire-retardant intumescent coating~~ composition according to claim 17 wherein the thermoplastic resin is an aldehyde or ketone resin.

19. (canceled).